UNITED STATES PATENT AND TRADEMARK OFFICE

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BEFORE THE BOARD OF PATENT APPEALS
AND INTERFERENCES

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*Ex parte* BARRINGTON HERMAN

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Appeal 2006-2166
Application 10/727,442
Technology Center 3600

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Decided: April 30, 2007

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Before BRADLEY R. GARRIS, CHARLES F. WARREN and LINDA M. GAUDETTE, *Administrative Patent Judges*.

GARRIS, *Administrative Patent Judge*.

DECISION ON APPEAL

Appellant appeals the final rejection of claims 1-14 under 35 U.S.C. § 134. We have jurisdiction over the appeal pursuant to 35 U.S.C. § 6(b).

We AFFIRM.

INTRODUCTION

Appellant invented a method for promoting the growth of shoots from a log. The method includes applying at least one cytokinin to an Alder, a Beech or a Birch log in an amount sufficient to promote growth of shoots

from the log (Specification 3). The method further includes applying a fertilizer that includes no more than about 0.01 % (w/v) nitrogen to the log in an amount sufficient to promote the growth of shoots from the log (Specification 4-5).

Claims 1 and 14 are illustrative:

1. A method for promoting the growth of shoots from a log, the method comprising the step of applying at least one cytokinin to a member of the group consisting of an Alder log, a Beech log and a Birch log, in an amount sufficient to promote the growth of shoots from the log.

14. The method of Claim 1 further comprising applying a fertilizer, that includes no more than about 0.01% (w/v) nitrogen, to the log in an amount sufficient to promote the growth of shoots from the log.

The Examiner relies on the following prior art references as evidence of unpatentability:

G. H. Saul, *Vegetative Propagation of Alder (Alnus glutinosa L.) by Rooted Cuttings*, 33 Ministry of Natural Resources Forest Research Note 1-4 (1982).

Yin Tung Wang, *Growth Substance, Light, Fertilizer, and Misting Regulate Propagation and Growth of Golden Pothos*, HortScience 25(12), 1602-04 (1990).

James A. Bryan, *Accelerating Fraser Fir Seedling Growth with Benzylaminopurine Sprays*, HortScience 26(4), 389-390 (1991).

B. Cuenca, *In vitro Adventitious Bud Regeneration from Internode Segments of Beech*, 60 Plant Cell, Tissue and Organ Culture 213-220 (2000).

The rejections as presented by the Examiner are as follows:

1. Claims 1, 7, and 8 are rejected under 35 U.S.C. § 103(a) as being unpatentable over Cuenca in view of Saul.

2. Claims 2-6, 9, 10, and 13 are rejected under 35 U.S.C. § 103(a) as being unpatentable over Cuenca in view of Saul and further in view of Bryan.
3. Claims 11 and 12 are rejected under 35 U.S.C. § 103(a) as being unpatentable over Cuenca in view of Saul and further in view of Bryan and further in view of Appellant's Specification.
4. Claim 14 is rejected under 35 U.S.C. § 103(a) as being unpatentable over Cuenca in view of Saul and further in view of Wang.

Appellant separately argues claims 1 and 14. Accordingly, we address Appellant's arguments regarding those claims in our opinion below.

## OPINION

### 35 U.S.C. § 103(a) REJECTION OVER CUENCA IN VIEW OF SAUL

Appellant argues that there is no suggestion to combine the references to arrive at the claimed invention (Br. 10). Appellant contends that Cuenca's disclosure, directed to using *in vitro* juvenile internodal segments, provides no suggestion or motivation to use logs (Br. 10-11). Appellant also contends that Cuenca teaches away from using logs because Cuenca states, "'Although adventitious shoot production is generally undesirable for clonal micropropagation, because it can result in somaclonal variation [i.e., genetic variation between clones], it presents an opportunity to regenerate plants from genetically transformed clones'" (Br. 12; emphasis deleted). Appellant contends that because Cuenca's abovenoted statement teaches away from using logs, there is no reasonable expectation of success to apply Cuenca's *in vitro* method to propagate identical adult plants from logs (Br. 12).

We are unpersuaded by Appellant's arguments for the reasons discussed below.

We begin our analysis by construing Appellant's claim term "log." We look to Appellant's Specification for guidance in our construction of the claim term "log." *Phillips v. AWH Corp.*, 415 F.3d 1303, 1316, 75 USPQ2d 1321, 1329 (Fed. Cir. 2005). In his Specification, Appellant describes a "log" as "typically between twelve inches and twenty four inches long, typically [has] . . . a diameter between one inch and two inches, and typically [has] . . . a generally cylindrical shape" (Specification 3). Appellant further states that ". . . [the] logs are preferably cut from the lower, healthy, *branches* of an Alder, [a] Beech or [a] Birch tree, although logs cut from upper branches may also be used" (emphasis added) (Specification 3). With regard to the "log" diameter range, we construe the term "typically" to mean the "log" diameters usually fall within the disclosed diameter range (i.e., one inch to two inches), but the "log" diameters may be less than or greater than the disclosed end points (i.e., one inch or two inches, respectively) of the "log" diameter range.

From Appellant's disclosure discussed above, we construe the claim term "log" to mean a portion of a tree branch that "typically" has a diameter from one to two inches, however, the branch diameter may be less than one inch or greater than two inches.

We note that Appellant defines "shoot" in his Specification. Appellant defines "shoot" as "tissue that grows from any portion of an Alder log, [a] Beech log or [a] Birch log that has meristematic activity" (Specification 2). Appellant further states in his Specification that "[s]hoots

may have the appearance of *small branches* and may form leaves" (emphasis added) (Specification 2).

Comparing our construction of the claim term "log" above and Appellant's definition of "shoot," it is impossible on this record to discern the difference between a branch which is a "shoot" and a branch which is a "log." Stated differently, Appellant's Specification makes it impossible to determine when a "shoot" is or is not a "log" so as to be encompassed or not encompassed by Appellant's claims. Appellant's definition of "shoot" indicates that a "shoot" may have the appearance of "small branches" (Specification 2). Appellant has neither provided a diameter range for the term "shoot" nor described what constitutes "small branches" as used in Appellant's "shoot" definition. Similarly, a "log", as construed, includes a portion of a tree branch "typically" having a diameter of one to two inches, but may have diameters less than one inch. Therefore, the record before us supports a determination that there is overlap between the term "shoot" and the claim term "log" as described by Appellant.

Cuenca discloses that shoot cultures of beech trees were used to obtain "internodal segments" for "[a]dventitious bud induction" (Cuenca 214, col. 2). The "internodal segments" were obtained from "6-week-old shoot cultures" obtained from shoot cultures of two-month old seedlings and a four-year old plant (Cuenca 214, col. 2). The "internodal segments" were treated with a cytokinin to develop shoot buds (Cuenca 216, col. 2), which developed into shoots that were later cut from the internodal segments and rooted (Cuenca, 218, col. 2 to 219, col. 1).

Applying our construction of the claim term "log" to Cuenca's method of using cytokinins to produce shoots, we determine that Cuenca's

disclosed ability to obtain shoots from internodal segments of shoot cultures obtained from a 4-year old plant (i.e., beech tree) provides a reasonable expectation that using a beech "log" (e.g., a portion of a beech tree branch having, for example, a diameter of one inch or less) would have been successful (Cuenca 214, col. 1 and 216, col. 1, Table 1). Moreover, Saul's disclosure that 20-25 year old trees may be used as a source of plant material for propagation further supports a reasonable expectation of success in combining Saul's "lignified cuttings" (i.e., "log") method with Cuenca's cytokinin treatment method. Accordingly, we determine that Cuenca and Saul provide a reasonable expectation that treating a "log" (e.g., a tree branch having a diameter of one inch or less) with cytokinins according to Cuenca's disclosed process would produce shoots thereon.

Appellant argues that Cuenca teaches away from using a "log" by disclosing that "'Although adventitious shoot propagation is generally undesirable for clonal micropropagation, because it can result in somaclonal variation, it presents an opportunity to regenerate plants from genetically transformed clones'" (Br. 12; emphasis deleted). This argument seems to be premised on Appellant's apparent belief that a "shoot" and a "log" are the same or similar, such that there would have been no motivation for using a "log" in Cuenca's method because somaclonal variation could result as may occur with a "shoot." Viewed from this perspective, Appellant's argument reinforces our above determination that the appeal record supports a belief there is overlap between the terms "shoot" and "log" as defined by Appellant.

In any event, in the cited passage, Cuenca only discloses that shoot propagation is "generally undesirable" and that "somaclonal variation" (i.e.,

genetic variation between clones) "can" occur, not that it will always occur by using "adventitious shoot propagation." In addition, one skilled in this art would have understood that, as with the shoots produced from a "log" using Appellant's claimed method (Specification 1: 16-18), the shoots produced from each of Cuenca's internodal segments would necessarily have the same genetic characteristics because they are produced from the same internodal segment. Thus, for each internodal segment the shoots produced would not have "somaclonal variation" (i.e., they would be genetically identical). Therefore, we determine that Appellant's cited passage from Cuenca does not teach away from using a "log" as claimed and disclosed by Appellant.

Contrary to Appellant's argument, there is motivation and suggestion for the combination of Saul's "lignified cuttings" (i.e., "log") method with Cuenca's method for producing adventitious buds from internodal segments of beech. In addition to the Examiner's determination that Saul provides motivation for the combination with Cuenca (Final Office Action 2), Cuenca provides motivation for the combination as well: to obtain a shoot that is "readily proliferated" (Cuenca, abstract). We conclude that, in light of the combined teachings of Cuenca and Saul, it would have been obvious for one of ordinary skill in the art to treat a "log" (e.g., a tree branch having a diameter of one inch or less) with cytokinin according to Cuenca's method to produce shoots for further propagation.

For the foregoing reasons, we sustain the Examiner's § 103(a) rejection of argued claim 1 and non-argued claims 7 and 8.

35 U.S.C. § 103(a) REJECTIONS OVER CUENCA IN VIEW OF SAUL AND BRYAN, AND CUENCA IN VIEW OF SAUL, BRYAN AND APPELLANT'S SPECIFICATION

Appellant does not separately argue the § 103(a) rejections over Cuenca in view of Saul and Bryan, or Cuenca in view of Saul, Bryan, and Appellant's Specification. Rather, Appellant relies on his arguments made regarding Cuenca and Saul with respect to claim 1. We are unpersuaded by those arguments for the same reasons we stated in our discussion regarding claim 1 (See our above discussion in the 35 U.S.C. § 103(a) REJECTION OVER CUENCA IN VIEW OF SAUL section).

Accordingly, we sustain the Examiner's § 103(a) rejection of claims 2-6, 9, 10, and 13 over Cuenca in view of Saul and Bryan, and the Examiner's § 103(a) rejection of claims 11 and 12 over Cuenca in view of Saul, Bryan, and Appellant's Specification.

35 U.S.C. § 103(a) REJECTION OVER CUENCA IN VIEW OF SAUL AND WANG

Appellant makes the same arguments with respect to claim 14 as previously made with respect to claim 1. We are unpersuaded by those arguments for the same reasons we stated in our discussion of claim 1 (See our above discussion in the 35 U.S.C. § 103(a) REJECTION OVER CUENCA IN VIEW OF SAUL section).

Appellant further argues that Wang teaches away from the claimed invention because "it teaches that the use of N fertilizer improves the growth of cuttings, in contrast to the claimed invention which recites the use of fertilizer with very low levels or no nitrogen" (Br. 15).

We are not persuaded by Appellant's argument for the reasons discussed below.

Wang discloses that "[a] carefully controlled fertilization program ensures good plant growth" (Wang, 1002, col. 1). Wang further discloses that fertilizers having differing nitrogen content were used in his study (Wang 1602 col. 1; 1603, Table 2 and 3, Osmoscote (19N-3P-10K) and water-soluble fertilizer (24N-3.5 P-13.3K)). Accordingly, Wang recognizes that the chemical composition of the fertilizer, including the nitrogen content, is an art recognized result effective variable such that it would have been obvious for an artisan with ordinary skill to develop workable or even optimum ranges for such art-recognized, result-effective parameters. *In re Woodruff*, 919 F.2d 1575, 1578, 16 USPQ2d 1934, 1936-1937 (Fed. Cir. 1990); *In re Boesch*, 617 F.2d 272, 276, 205 USPQ 215, 219 (CCPA 1980); *In re Aller*, 220 F.2d 454, 456, 105 USPQ 233, 235 (CCPA 1955).

From the foregoing, it would have been obvious to one of ordinary skill in the art in view of Wang's disclosure to adjust the fertilizer composition, including the nitrogen content, to an optimum level for fostering shoot growth.

Accordingly, we sustain the Examiner's § 103(a) rejection of claim 14 over Cuenca in view of Saul and Wang.

DECISION

The Examiner's rejections of claims 1, 7, and 8 under § 103(a) over Cuenca in view of Saul is AFFIRMED.

The Examiner's rejection of claims 2-6, 9, 10, and 13 under § 103(a) over Cuenca in view of Saul and Bryan is AFFIRMED.

The Examiner's rejection of claims 11 and 12 under § 103(a) over Cuenca in view of Saul, Bryan and Appellant's Specification is AFFIRMED.

The Examiner's rejection of claim 14 under § 103(a) over Cuenca in view of Saul and Wang is AFFIRMED.

No time period for taking any subsequent action in connection with this appeal may be extended under 37 C.F.R. § 1.136(a)(1)(iv) (2006).

AFFIRMED

sld/ls

Weyerhaeuser Company
Intellectual Property Dept., CH 1J27
P.O. Box 9777
Federal Way, WA 98063